

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims

Claim 1 (Currently Amended): An article of footwear, which comprises:

a vamp;

a lower support connected to said vamp; and

at least one insert mounted in said lower support and which includes first and second airtight casings each having a plurality of elements positioned therein which are elastically deformable such that the biomechanics of a foot of a user are optimized wherein said deformable elements comprises at least ~~two batteries~~ a first and second battery of said deformable elements respectively placed in said first and second casings, said first and second casings being interconnected by a bridging portion, and said deformable elements being interconnected by integral bridging portions for permitting flexibility between the first and second casings, said deformable elements each having a substantially oval-shaped horizontal cross-section, ~~and~~ wherein said bridging portion of said first and second casings is aligned with a flex line of the foot of the user and wherein at least one of said elements of said first battery extends across substantially an entire width portion of said first casing.

Claim 2 (Original): An article of footwear as claimed in Claim 1, wherein the air pressure in said casing is less than atmospheric pressure.

Claim 3 (Original): An article of footwear as claimed in Claim 1, wherein said deformable elements comprise cored elements for reducing the weight thereof.

Claim 4 (Original): An article of footwear as claimed in Claim 2, wherein said deformable elements comprise dimpled elements for reducing the weight thereof.

Claim 5 (Original): An article of footwear as claimed in Claim 1, wherein said deformable elements are interconnected by bridging portions.

Claim 6 (Original): An article of footwear as claimed in Claim 1, wherein said deflatable elements have an oval cross-section.

Claim 7 (Original): An article of footwear as claimed in Claim 5, wherein said elements comprise batteries of deformable elements.

Claim 8 (Original): An article of footwear as claimed in Claim 5, wherein said bridging portions are aligned with flex lines of the foot of the user.

Claim 9 (Original): An article of footwear as claimed in Claim 5, wherein said bridging portions are integrally formed with said casing.

Claim 10 (Original): An article of footwear as claimed in Claim 1, wherein said deformable elements are located in at least one of the heel portion, lateral portion, forefoot portion and metatarsal portion of the lower support.

Claim 11 (Original): An article of footwear as claimed in Claim 1, wherein said elements are substantially oval shaped in cross-section.

Claim 12 (Original): An article of footwear as claimed in Claim 11, wherein said elements comprise cored elements for reduction of weight of said elements.

Claim 13 (Original): An article of footwear as claimed in Claim 11, wherein said elements are interconnected by bridging portions.

Claim 14 (Original): An article of footwear as claimed in Claim 13, wherein said bridging portions are connected to said airtight casing.

Claim 15 (Original): An article of footwear as claimed in Claim 11, wherein said elements comprise batteries of at least three elements that are interconnected by bridging portions.

Claim 16 (Original): An article of footwear as claimed in Claim 11, which comprises a hinge member which interconnects adjacent elements wherein said hinge member is one of a hinge in alignment with at least one joint of a wearer's foot and a hinge which is oriented to match a rotational distortion thereof.

Claim 17 (Original): An article of footwear as claimed in Claim 1, wherein at least one of said elements is located on a medial border of a sole portion of the article of footwear so as to be positioned substantially beneath an arch portion of the foot.

Claim 18 (Previously Amended): An article of footwear as claimed in Claim 1, wherein said elements include an element located in a heel portion of the midsole and wherein said at least one element has a stiffness greater than said element located at the heel

portion of the midsole so as to reduce the degree of pronation of the foot of the user during running.

Claim 19 (Original): An article of footwear as claimed in Claim 17, wherein a forefoot portion of said at least one element comprises two adjacent separate elements with an area of separation therebetween corresponding generally to a metatarsal-phalangeal joint of the foot of the user.

Claim 20 (Original): An article of footwear as claimed in Claim 17, wherein a portion of said at least one element includes a forefoot pad located under a first, second and third metatarsal-phalangeal joint of the foot.

Claim 21 (Original): An article of footwear as claimed in Claim 17, wherein said at least one element includes a plurality of ovoid barrel elements having a longitudinal axis aligned with flex lines of the user's foot to permit greater ease of flexion.

Claim 22 (Original): An article of footwear as claimed in Claim 1, wherein said at least one insert comprises a heel insert having a central heel cushioning portion and a lateral cushioning portion with a hinged portion interconnecting said central heel cushioning portion and said lateral cushioning portion for absorbing impact forces from the heel of the foot of the user and for reducing leveraged acceleration of the sole towards the ground as well as a rate of pronation of the user.

Claim 23 (Original): An article of footwear as claimed in Claim 1, wherein said at least one insert comprises a heel insert having a central heel portion, a lateral cushioning

portion and a hinged portion interconnecting said central heel portion and said lateral cushioning portion.

Claim 24 (Original): An article of footwear as claimed in Claim 23, wherein a rear lateral border portion of said insert is distanced from an outside border of the sole and midsole to permit encapsulation of insert with a foam member.

Claim 25 (Original): An article of footwear as claimed in Claim 11, wherein said insert comprises first and second heel elements and first and second forefoot elements divided about a substantially longitudinal axis so as to reduce leveraged acceleration of the foot of the user.

Claim 26 (Original): An article of footwear as claimed in Claim 11, wherein said insert comprises a plurality of cushioning elements located at a rear portion of the heel and at least one laterally positioned forefoot element to reduce any tendency of the sole to collapse under a forefoot lateral border portion of the sole during a cutting motion of the user when running.

Claim 27 (Original): An article of footwear as claimed in Claim 26, wherein said at least one laterally positioned forefoot element comprises a single element.

Claim 28 (Original): An article of footwear as claimed in Claim 11, wherein said insert comprises at least one heel element and a forefoot pad positioned inwardly from adjacent borders of the sole to permit encapsulation thereof in the sole.

Claim 29 (Previously Amended): An article of footwear as claimed in Claim 11, wherein said insert comprises a heel cushioning element positioned inwardly from an adjacent border of the sole to permit full encapsulation of said element in the midsole.

Claim 30 (Original): An article of footwear as claimed in Claim 11, wherein said insert comprises a heel element for providing cushioning under the calcaneus portion of the foot and a separate forefoot element for cushioning the foot under the first four metatarsal-phalangeal joints of the foot.

Claim 31 (Currently Amended): A method of forming an insert for an article of footwear, which comprises:

forming at least one insert from a plurality of interconnected elements;

inserting said elements into first and second casings so as to be positioned in a midsole portion of an article of footwear such that the biomechanics of a foot of a user wearing the article of footwear are optimized wherein the step of forming the interconnected element comprises forming at least two batteries of deformable elements so as to be respectively positioned in said first and second casings wherein said deformable elements are each substantially oval-shaped in horizontal cross-section and wherein at least one of battery elements extends across substantially an entire width portion of said first casing, the step of forming the elements comprises forming at least two batteries of said deformable elements, and

interconnecting said first and second casings by a bridging portion aligned with a flex line of the foot of a user wherein the step of forming the deformable elements comprises interconnecting said deformable elements by integral bridging portions.

Claim 32 (Original): The method as claimed in Claim 31, wherein the step of forming the interconnected element comprises forming elements which are substantially oval shaped in cross-section.

Claim 33 (Original): The method as claimed in Claim 31, wherein the step of forming the elements comprises forming cored elements for reduction of weight of said elements.

Claim 34 (Original): The method as claimed in Claim 31, wherein the step of forming the elements comprises forming elements which are interconnected by bridging portions.

Claim 35 (Original): The method as claimed in Claim 34, which comprises interconnecting the bridging portions with an airtight casing.

Claim 36 (Original): The method as claimed in Claim 31, wherein the step of forming of the elements comprises forming elements as batteries of at least three elements and interconnecting said batteries by bridging portions.

Claim 37 (Original): The method as claimed in Claim 31, which comprises interconnecting adjacent elements of said plurality of elements with hinge members wherein said hinge members comprise one of hinge members in alignment with at least one joint of the user's foot and a hinge oriented so as to match a rotational distortion thereof.

Claim 38 (Original): A method as claimed in Claim 31, which comprises the step of forming the elements such that at least one of the elements is located on a medial border of a sole portion of the article of footwear so as to be positioned substantially beneath an arch portion of the foot.

Claim 39 (Previously Amended): The method as claimed in Claim 31, wherein the step for forming the elements comprises forming the elements so as to include an element located in a heel portion of the midsole and forming at least one of said elements so as to have a stiffness greater than the element located at the heel portion of the midsole so as to reduce a degree of pronation of the foot during running.

Claim 40 (Original): The method as claimed in Claim 31, which comprises locating at least one of the elements in a forefoot portion of the article of footwear so as to have two adjacent separate elements with an area of separation therebetween corresponding generally to a metatarsal-phalangeal joint of the foot.

Claim 41 (Original): The method as claimed in Claim 31, which comprises locating at least one of the elements in a forefoot portion of the sole so as to include a forefoot pad located under a first, second and third metatarsal-phalangeal joint of the foot.

Claim 42 (Original): The method as claimed in Claim 38, wherein the forming of the elements comprises forming at least one element so as to include a plurality of ovoid barrel elements having a longitudinal axis aligned with flex lines of the user's foot to permit greater ease of flexion.

Claim 43 (Previously Amended): The method as claimed in Claim 31, wherein the step of inserting at least one insert comprises inserting at least one insert in a central heel cushioning portion of the midsole and locating a lateral cushioning portion in the sole with a hinge portion interconnecting the central heel cushioning portion and the lateral cushioning portion so as to absorb impact forces from the heel portion of the foot and to reduce leveraged acceleration of the midsole towards the ground as well as a rate of pronation.

Claim 44 (Previously Amended): The method as claimed in Claim 31, wherein inserting the insert comprises inserting a heel insert into the midsole having a central heel portion, a lateral cushioning portion and a hinge portion interconnecting the central heel portion and said lateral cushioning portion.

Claim 45 (Previously Amended): The method as claimed in Claim 44, which comprises distancing a rear lateral border portion of said insert from an outside border of the shoe and the midsole to permit encapsulation of the insert with the foam member.

Claim 46 (Original): The method as claimed in Claim 31, wherein the step of inserting the insert comprises inserting an insert having at least first and second heel elements and first and second forefoot elements and divided about a substantially longitudinal axis so as to reduce leveraged acceleration on the foot.

Claim 47 (Previously Amended): The method as claimed in Claim 31, wherein the step of inserting the insert comprises inserting an insert having a plurality of cushioning elements located at a rear portion of the heel and at least one laterally positioned forefoot element to

reduce any tendency of the sole to collapse under a forefoot lateral border portion on the midsole during a cutting motion of the user when running.

Claim 48 (Original): The method as claimed in Claim 47, wherein at least said laterally positioned forefoot element comprises a single element.

Claim 49 (Previously Amended): The method as claimed in Claim 31, wherein the step of inserting the insert comprises inserting an insert having at least one heel element and a forefoot pad positioned inwardly from adjacent borders of the midsole so as to permit encapsulation thereof in the midsole.

Claim 50 (Previously Amended): The method as claimed in Claim 31, wherein the step of inserting the insert comprises inserting a heel cushioning element positioned inwardly from an adjacent border of the midsole to permit full encapsulation of the element in the midsole.

Claim 51 (Original): The method as claimed in Claim 31, wherein the step of inserting the insert comprises inserting an insert which includes a heel element for providing cushioning under the calcaneus portion of the foot and a separate forefoot element for cushioning the foot under the first four metatarsal-phalangeal joints of the foot.

Claim 52 (Currently Amended): Particle of footwear as claimed in Claim 1, wherein said elements are substantially H-shaped in vertical cross-section and have a substantially circular horizontal cross-section.

Claim 53 (Previously Added): Particle of footwear as claimed in Claim 1, wherein said elements are substantially H-shaped in vertical cross-section.

Claim 54 (Currently Amended): Method as claimed in Claim 1, wherein the step of forming the element comprises forming elements which are ~~substantially H-shaped in vertical cross-section~~ of substantially circular horizontal cross-section.

Claim 55 (Previously Added): Particle of footwear as claimed in Claim 1, wherein said first casing is substantially circular in horizontal cross-section and said second casing is substantially arcuate shaped in horizontal cross-section.

Claim 56 (Previously Added): Method claimed in Claim 31, wherein the inserting of said elements into the first and second casing comprises inserting said elements into a first casing having a substantially circularly shaped horizontal cross-section and into a second casing having a substantially arcuate shaped horizontal cross-section.

Claim 57 (Currently Amended) An article of footwear, which comprises:
a vamp;
a lower support connected to said vamp; and
at least one insert mounted in said lower support and which includes first and second airtight casings each having a plurality of elements positioned therein which are elastically deformable such that the biomechanics of a foot of a user are optimized wherein said deformable elements comprises ~~at least two batteries~~ a first and second battery of said deformable elements respectively located in said first and second casings, said first and second casings being interconnected by a bridging portion aligned with a flex line of the foot

of a user, and said deformable elements being interconnected by integral bridging portions for permitting flexibility between the first and second casings wherein at least one of said elements of said first battery extends substantially across an entire width portion of said first casing.

Claim 58 (Previously Added): An article of footwear as claimed in claim 57, wherein said bridging portion of said first and second casings is aligned with a flex line of the foot of the user.

Claim 59 (Currently Amended): A method of forming an insert for an article of footwear, which comprises:

forming at least one insert from a plurality of interconnected elements;

inserting said elements into first and second casings so as to be positioned in a sole portion of an article of footwear such that the biomechanics of a foot of a user wearing the article of footwear are optimized wherein the step of forming the interconnected element comprises forming ~~at least two batteries~~ a first and second of deformable elements so as to be respectively positioned in said first and second casings, the step of forming the elements comprises forming at least two batteries of said deformable elements, ~~and~~

interconnecting said first and second casings by a bridging portion aligned with a flex line of a foot of a user; and

forming at least one of said elements of said first battery so as to extend across substantially an entire width portion of said first casing.

Claim 60 (Previously Added): The method as claimed in claim 29, wherein said bridging portion of said first and second casings are aligned with a flex line of the foot of the user.

Claim 61 (New): An article of footwear as claimed in claim 1, wherein each of said elements are substantially H-shaped in vertical cross-section.

Claim 62 (New): An article of footwear as claimed in Claim 1, wherein each of said elements are substantially H-shaped in vertical cross-section.

Claim 63 (New): A method as claimed in Claim 59, wherein comprises forming each of said elements so as to be substantially H-shaped in vertical cross-section.